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## FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES

#### **FIT PROJECT**

TASK REPORT TO THE ENVIRONMENTAL PROTECTION AGENCY CONTRACT NO. 68-01-6056



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# TASK REPORT TO THE ENVIRONMENTAL PROTECTION AGENCY CONTRACT NO. 68-01-6056

SITE INSPECTION REPORT ON ATLAS ASBESTOS COMPANY COALINGA ASBESTOS COMPANY COALINGA, CALIFORNIA

TDD# F-9-8007-2

Submitted to: Robert M. Mandel January 9, 1980

ecology and environment, inc.

International Specialists in the Environmental Sciences



# EPA FIELD INVESTIGATION TEAM ECOLOGY AND ENVIRONMENT, INC. 120 HOWARD STREET, SUITE 640 SAN FRANCISCO, CA 94115

#### HAZARDOUS WASTE SITE INSPECTION REPORT

4 DECEMBER 1980

TDD# F-9-8007-2

#### SITES

Atlas Asbestos Company Coalinga, California

Coalinga Asbestos Company Coalinga, California

#### DATE OF INSPECTION

4 December 1980; 1250-1615

#### INSPECTION PARTICIPANTS

David A. Buecker, Ecology and Environment, Inc.	<u>(</u> 415) 777-2811
Mark E. Ransom, Ecology and Environment, Inc.	(415) 777-2811
Patricia A. Datzman, Bureau of Land Management	(805) 861-4191
James B. Wolfson, State of California, RWQCB	(209) 445-5116
Arnold K. Hatai, State of California, RWOCB	(209) 445-5116



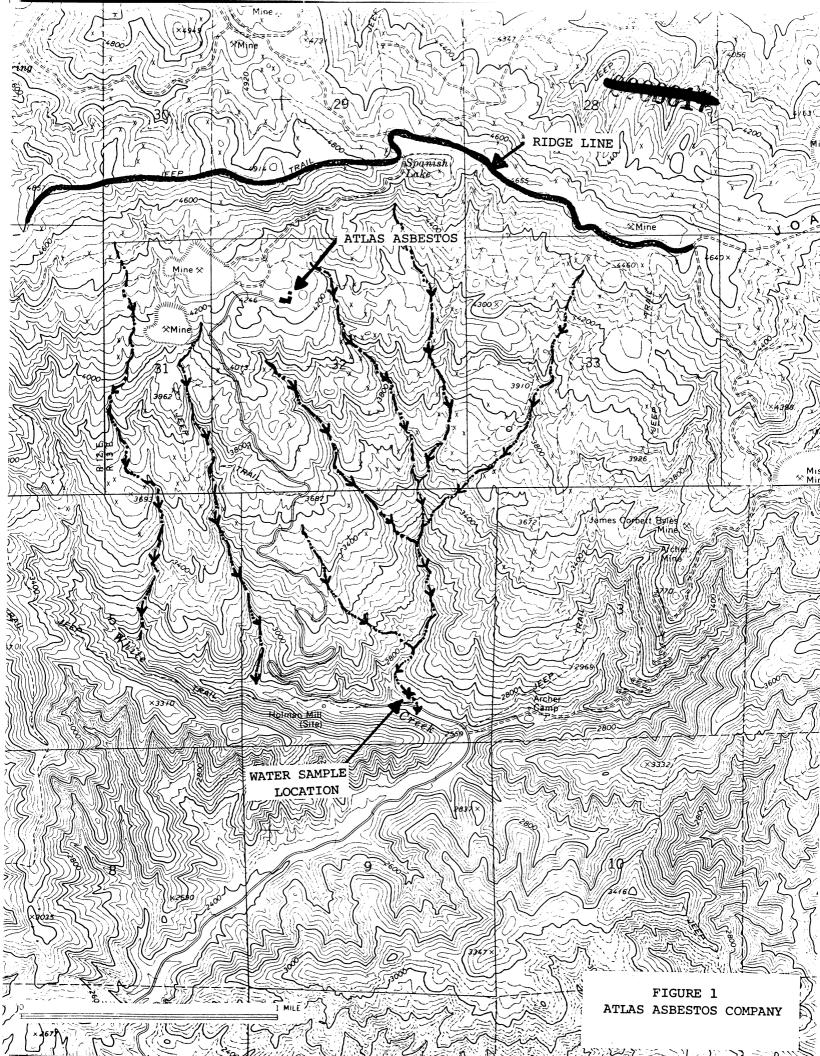
#### INTRODUCTION

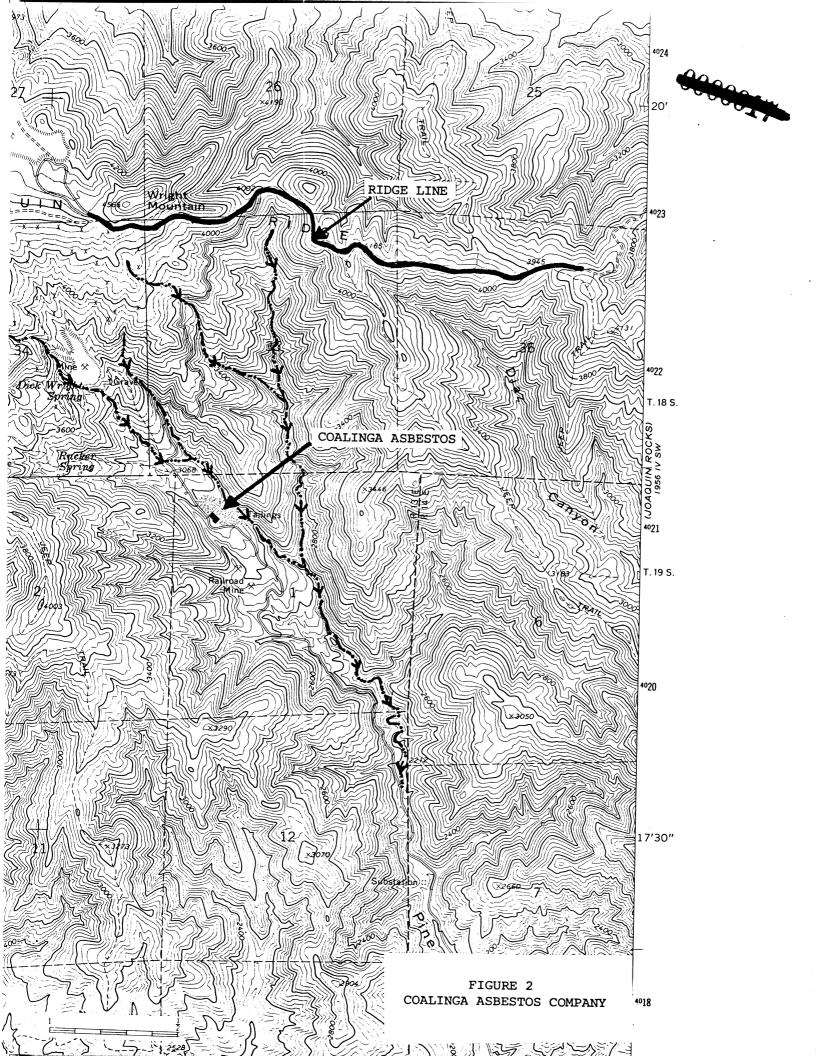
Upon request of USEPA, Region IX, Enforcement Division, Ecology and Environment, Inc., staff conducted a site inspection of the abandoned Atlas and Coalinga Asbestos facilities on 4 December 1980. The primary purpose of the inspection was to verify the post-closure presence of visible air emissions and observe surface crust formations that may reduce air emissions and water quality problems associated with the sites. In addition, the condition of the tailings at the recently abandoned Atlas Asbestos Company were to be compared with those at the Coalinga Asbestos site which was abandoned approximately seven years ago.

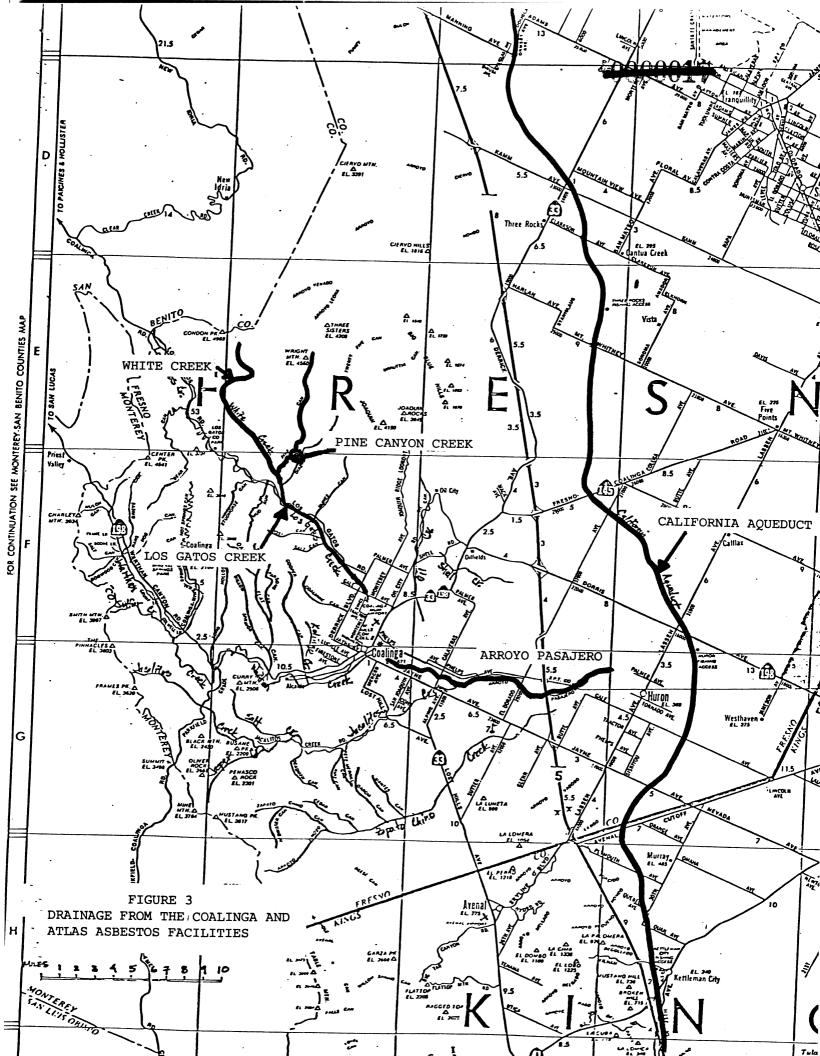
The site investigation included preparatory discussions with representatives from the State of California, Regional Water Quality Control Board (RWQCB-Fresno), and the U.S. Department of the Interior, Bureau of Land Management (BLM-Bakersfield); a review of pertinent information compiled by State inspectors from previous inspections (Appendix A); and a walk-through inspection of the sites. Mine and mill operators were not contacted since both facilities are non-operational. Representatives of the RWQCB and BLM concurrently completed inspections of the subject sites.

#### DESCRIPTION

The Atlas Asbestos Company mine and mill are located approximately 18 miles northwest of Coalinga, California; NW 1/4 SEC32, T18S, R13E (Figure 1). The recently abandoned site includes an open-pit mine, a mined ore stockpile, mill facilities, and processed waste tailings. The area of the tailings has been estimated to cover 724,200 square feet (about 17 acres). White Creek, approximately 1 1/2 miles south, receives surface runoff from the facility which eventually flows to Los Gatos Creek.







The Coalinga Asbestos Company mine and mill are located approximately 17 miles northwest of Coalinga, CA; NW 1/4 SEC1, T19S, R13E (Figure 2). The abandoned site includes a processing mill, two open-pit mines, a mined ore stockpile, and processed waste tailings. The tailings have been estimated to cover approximately 115,200 square feet (about three acres). The facility is drained by Pine Canyon Creek which flows to Los Gatos Creek.

Though each site is within discrete sub-drainage basins, runoff from each site (and both White and Pine Canyon Creeks) ultimately drains into Los Gatos Creek. Los Gatos Creek, which flows through the town of Coalinga, is a tributary to a flood drainage area known as the Arroyo Pasatero. Water is intermitently released into the California Aqueduct through a flood gate controlled by the California Department of Water Resources (Figure 3).

#### INSPECTION OBSERVATIONS

On 4 December 1980, Messrs., D.A. Buecker and M.E. Ransom accompanied by staff from the RWQCB and BLM conducted a joint inspection of the Atlas and Coalinga Asbestos facilities. Site access was obtained through Mr. Joe Herzog and Birdwell Ranch for the Atlas and Coalinga sites respectively.

Upon arrival at the Atlas Asbestos site an on-site rain gauge indicated that approximately 1.39 inches of rain had fallen in the previous 12 to 24 hour period. It continued to rain lightly during the investigation. The ambient temperature ranged in the 40's with westerly winds from 15 to 20 miles per hour. The inspection was conducted from 1250 hours to 1500 hours at which time the following observations were made:

- No visible emissions were noted. (Photo #7)
- No direct runoff was noted from the tailings.



- The site is located in the upper reaches of the watershed and does not appear to be subject to high runoff flows. (Photos #1,3)
- The entire site was wet and gray in color, contrary to the white material observed in current aerial photos.
- The tailings were wet to a depth four to six inches beneath the surface. Below this blanket the tailings were dry, white in color and appeared to have the consistency of finely ground fibrous and taic-like material. (Photo #2)
- The wet tailings were spongy and compressible with the consistency of a fibrous clay.
- The dry material was of low density and easily became airborne when disturbed.
- Any crust that had existed was destroyed by the intensity of the rainfall. On the easterly slopes of the tailings remnants of a thin, fragile crust were noted. (Photo #5)
- Several major erosion cuts were noted on the sloped faces of the tailings. (Photo #3)
- Deep fractures (approximately five feet) were noted on the top surface of the tailings.
- Water was flowing from what appeared to be a spring in the open-pit mine. A denser salt-like crust differing in consistency from the crust remaining on the tailings, bordered the stream on each side for approximately 2-3 feet.
- The town of Coalinga was observed to the southeast through the valley while standing on the tailings. (Photo #4)

After completing the walk-through inspection, a water sample was taken from an unnamed tributary to White Creek which drains the tailings area (Figure 1). Since no runoff was observed from the tailings the sample is likely to be indicative of natural runoff and erosion of the naturally-occurring serpentine ores. (Appendix B and Photo #6 should be consulted for complete sample documentation.)



The Coalinga facility was inspected immediately after the Atlas facility inspection (from 1545 hours to 1615 hours) and was conducted under the same climatic conditions. The Coalinga tailings appeared to exhibit the same physical characteristics of those observed at the Atlas facility. The following additional observations were made:

- No visible emissions were noted.
- No direct runoff was observed from the tailings.
- Two empty sedimentation ponds constructed of tailings material are located at the southeastern corner of the facility. The high water marks indicated that the ponds had not been breached.
- Water was flowing in Pine Creek and had been effectively diverted upgradient of the tailings.
   No water was flowing through the site.
- An inactive D-7 caterpiller was on-site. There was evidence of recent activity downgradient and southwest of the tailings.

#### DISCUSSION

Prior to inspection of the Atlas and Coalinga facilities it was thought that the Coalinga tailings may exhibit different physical characteristics than those at Atlas due to its extended seven-year period of inactivity. However, under the climatic conditions experienced, during and prior to the inspection, the tailings material at each site exhibited the same physical features. If a crust existed at either site, prior to the storm, it had been largely destroyed by the intensity of the rainfall. Though visible emissions were not evident at either site, the potential for wind erosion of dry tailings material may still exist under different environmental conditions, i.e.; extended dry weather, no crust, and high winds. To more accurately assess the air pollution potential, variable air shed and micro-meteorological conditions at each site must be examined carefully as well as the physical/chemical binding properties of the tailings and open-pit surfaces.

In conducting the site inspections no surface runoff was observed at either mill site. From general observations and discussions with RWQCB staff it appears that upstream runoff at the Coalinga site can be effectively controlled with a properly implemented and maintained diversion system. The Southern Pacific Land Company (current land owner) is modifiying the upstream diversion system to RWQCB specifications. The RWQCB staff also indicated, based on their calculations, that the Atlas facility is situated high enough in the watershed to limit asbestos contamination of surface waters. The RWQCB is attempting to verify this hypothesis with a planned sampling program. (Appendix A)

The BLM is principally interested in the Atlas site and environs for its recreational value for off-road vehicle use. The site is thought to be partially situated on BLM property. BLM is addressing the issue of vehicle induced asbestos emissions and exposure in a draft EIA currently in preparation.<sup>4</sup>



#### ASSESSMENT OF PROPOSED REMEDIAL MEASURES

On 6 October 1980 Ecology and Environment, Inc. submitted a report to USEPA, Region IX, discussing alternative remedial measures for the Coalinga and Atlas Asbestos mine tailing piles. In this report four alternatives were addressed for the control of air and water emissions at both sites:

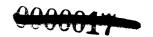
- Alternative 1 Import off-site soil material which would provide a one foot cover blanket at each tailings site.
- Alternative 2 A hydroseeding (mulching) operation in conjunction with the cover application in Alternative 1.
- Alternative 3 In place chemical stabilization of the tailings.
- Alternative 4 Complete removal of the tailings material to an approved Class I disposal site.

It is recognized that these four alternatives are not the only means of controlling off-site migration of asbestos, however, these alternatives addressed a wide range of solutions to both air and water contamination problems of yet undetermined magnitude. Cost calculations and site analyses were based solely on July, 1980 aerial photos and information contained in previous EPA inspection reports. The 12/9/80 on-site investigation provided additional information regarding the physical characteristics of the two tailings sites. This additional insight lends credence to the practical feasibility of some of the original alternatives.

The Atlas asbestos site is located in the upper reaches of the watershed and because of the relatively small volume of surface area available to collect surface runoff does not appear to present a water quality problem of the magnitude originally anticipated. For verification, supplemental observations need to be conducted during and subsequent to intense rainfall. The remote locations, physical characteristics

of the tailings material (low density), and size of the site make three of the four alternatives suggested highly undesirable. Hauling costs, workability of the material, and emissions created by disturbance of the tailings may outweigh the benefits accrued. A form of chemical stabilization, or variation thereof in combination with limited upstream diversion may prove to be the most workable and cost effective alternative for the control of air and water emissions.

The Coalinga Asbestos facility is also in a remote location but subject to higher runoff flows due to its location in the watershed. The Southern Pacific Land Company (site owner) has demonstrated that flows encountered thus far in 1980 can be effectively controlled by upstream runoff diversion and are currently working with the State of California RWQCB in an attempt to control potential water quality problems. To date, visible air emissions have not been observed during inspections of the facility. If it is determined that a problem exists, a chemical stabilizer at Coalinga may also be the most cost-effective alternative.



#### **REFERENCES**

- 1. Environmental Monitoring Systems Laboratory, Las Vegas, Nevada, Aerial Reconnaissance of Hazardous Waste Sites, Coalinga, California, July 1980.
- 2. Ibid.
- 3. Mr. Joe Herzog, Trapper in the Coalinga Hills near the Atlas Asbestos facility. (Telephone # (209) 935-0628)
- 4. Patricia A. Datzman, Hydrologist, U.S. Department of the Interior, Bureau of Land Management (Telephone # (805) 861-4191)



## PHOTOGRAPHIC DOCUMENTATION

PHOTOGRAPHERS: Mark E. Ransom David A. Buecker

CAMERA: Canon AE-1 with 50 mm Canon lens.

FILM: Kodacolor ASA 400

SETTINGS: Automatic, SS 125

DATE: December 4, 1980

VOUCOTE



Photograph #1. DRAINAGE AREA TO THE EAST OF TAILINGS.



Photograph #2. CONTRAST BETWEEN WET AND DRY TAILINGS.





Photograph #3. EROSION CUT AND DRAINAGE AREA TO THE EAST. EVIDENCE OF SEDIMENTATION.

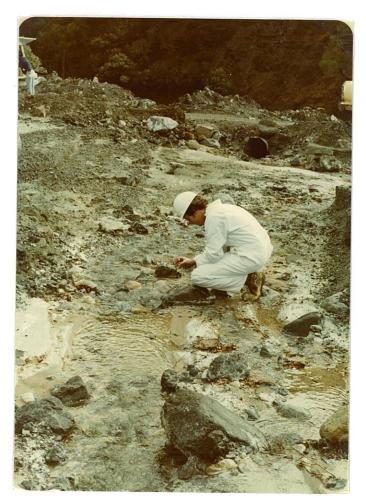


Photograph #4. FROM TAILINGS FACING EAST WITH THE TOWN OF OF COALINGA IN THE FAR DISTANCE.

Secretary.

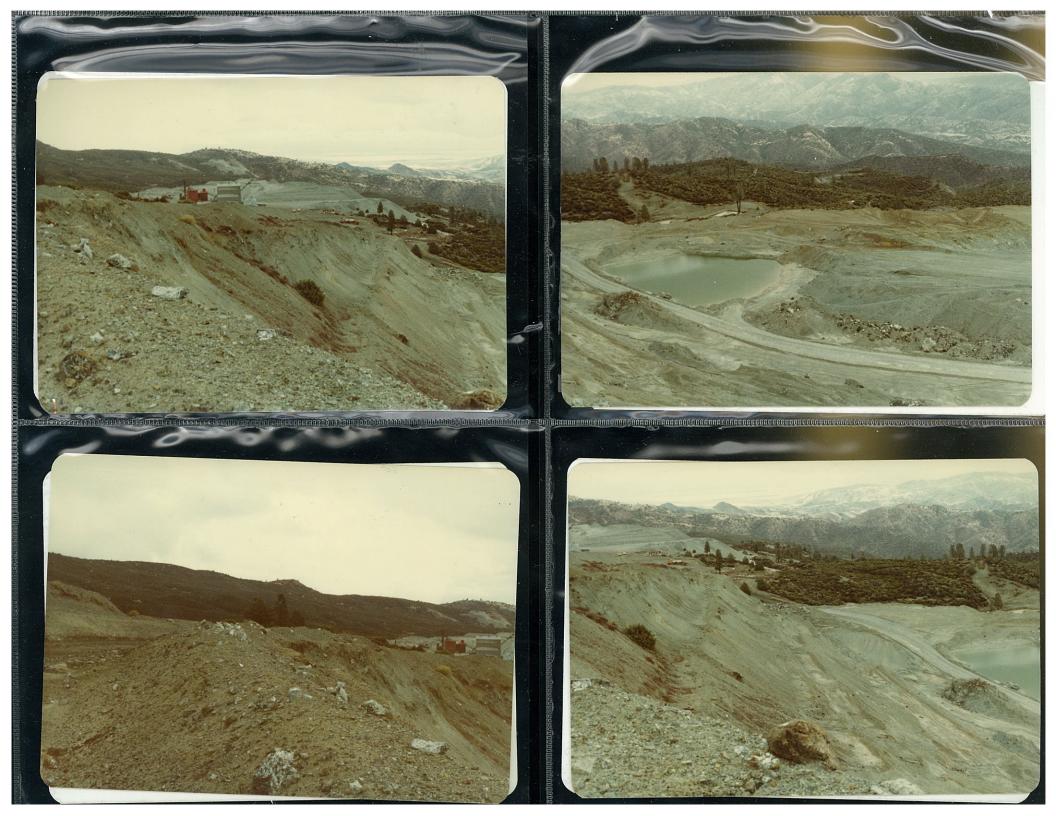


Photograph #5. CLOSE-UP PHOTO SHOWING REMNANTS OF CRUST MATERIAL. FACING UP SLOPE AND WEST.



Photograph #6. WATER SAMPLE COLLECTION POINT. TAKEN JUST OFF ACCESS ROAD BEFORE CONFLUENCE WITH WHITE CREEK.







#### APPENDIX A

STATE REGIONAL WATER QUALITY BOARD INSPECTION REPORT AND WATER SAMPLING PROGRAM



#### **MEMORANDUM**

T0:

Loren J. Harlow

DATE: 29 October 1980

FROM:

Arnold K. Hatai

SUBJECT:

COMPLIANCE INSPECTIONS - ASBESTOS MINE AND MILL FACILITIES.

FRESNO COUNTY

In Western Fresno County the uplift of the Coast Ranges has yielded a massive localized "plug" of asbestos rich serpentine ore. The Coalinga Asbestos Company and Atlas Asbestos Company mining operations are located on this ore body in the White Creek watershed. These inspections were made in response to reportedly high concentrations of asbestos fibers found in the California Aqueduct, conjectured to be the result of the mining operations.

The asbestos wastes generated by these mining facilities are: (1) raw waste ore removed from the hillside and stockpiled downhill (Reportedly the asbestos content of the ore must have been at least 25% to be milled.); (2) waste tailings (fine nonmarketable asbestos and rock) generated by the milling or asbestos extraction process. Waste discharge requirements for the facilities specify that the discharge of asbestos mining wastes shall not cause a nuisance or pollution. My inspection of these facilities follow.

<u>Coalinga Asbestos Company, Inc.</u> Waste Discharge Requirements, Resolution No. 70-33

On 15 October 1980, Mr. Carl Carlucci representing the State Department of Health Services and I visited the subject mine and mill facilities. Messrs. Ralph Bisset, local representative for the Southern Pacific Land Company; David Long, attorney for Southern Pacific; and Joseph Jeno, engineer for Dames and Moore Consultants accompanied us. The Southern Pacific Land Company owns the mill property and facilities.

My observations indicated that the facility consisted of three open pit mines and one mill. The mill was reportedly completed in 1962 and operating in 1973, but it had been closed prior to my visit.

At the mill, shown on the attached map, the tailings stockpile was observed to be in a canyon area in an intermittent watercourse. To contain the surface runoff flow and groundwater springs, several large ponds were found cut below the surface elevation of the tailings to apparently capture the natural flow from watershed A (see map). No breaks in the pond perimeter were observed; however, the tailings appeared to be a loose and erodable material. (A sample was taken to determine the asbestos content.) In addition, makeshift dams upstream and downstream were observed which appeared to have been breeched. The downstream dam appeared to have captured eroded tailings and seepage water from the upstream tailings stockpile (slides on file).



Two of the three observed mines were found to be a part of the White Creek watershed and inspected (see map). At the Mistake Mine, west of the mill, evidence of high surface runoff flows were found to have channeled across stockpiled ore material, eroding the material readily off the mine site. At the other mine north of the mill, the slopes of stockpiled ore appeared to have undergone channeled erosion on the slopes. It appeared that this material goes directly into a drainage channel (slides on file). From the enclosed map and my observations, it is evident that the drainage from the mine sites is tributary to White Creek. In addition, storm runoff flows from watershed B has a potential to flow through the tailings stockpile.

To better analyze the observed site conditions, a storm runoff analysis of watersheds  ${\sf A}$  and  ${\sf B}$  is provided in Table 1.

Table 1
Storm Runoff Flows from Above the Mill<sup>1</sup>/

Watershed	Drainage Area (acres)		Discharge (cfs) 100-yr. Storm	Total V of Runoff ( 24-hour 10-yr. Storm	olume acre-feet) 24-hour 100-yr. Storm
Α	100	150	300	10	20
В	600	700	1,300	60	100

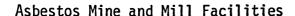
1/ The rational method was used assuming saturated soil conditions.

Based on the estimated magnitude of the flows and volumes and my observations, it is evident that the existing drainage control has failed to completely control the storm runoff from the mine and mill areas.

Mr. Long indicated that the Southern Pacific Land Company has always owned the property in Section 1, T19S, R13E, MDB&M on which the mill and tailings area are located. Apparently, the land was leased to Johns-Manville Company who developed the property for the mill and operated the mines as Coalinga Asbestos Company. When they did not maintain the lease, the land use and mill facilities reverted back to Southern Pacific. Mr. Long indicated that, as the landowners, Southern Pacific would take the responsibility and necessary actions for meeting Board requirements.

In conclusion, the Coalinga Asbestos facility threatens to violate Board discharge resolutions which specify that:

- "1. The discharge shall not cause a pollution of ground or surface waters.
- The discharge shall not cause a nuisance."



As a result, we should seek corrective measures which will prevent mine and mill generated asbestos wastes from entering drainage courses. To accomplish this, the landowner should be requested to implement corrective measures as necessary to provide adequate drainage control facilities and onsite erosion controls to maintain the wastes on the facilities.

### Atlas Asbestos Company Waste Discharge Requirements, Resolution No. 70-32

On 17 October 1980, Messrs, Carl Carlucci representing the State Department of Health Services and James Wolfson and I of the Board staff visited the subject mine. No Atlas Company officials could accompany us as the mine was not in operation and our understanding is that the owners have stopped operations and initiated bankruptcy procedures.

My observations indicated that the facility consists of two open pit mines and one mill. Reportedly, the mill was completed in 1963 and found operating in 1973, with operations closed in June 1980.

At the mill shown on the attached map, the tailings stockpile was observed to be situated on a plateau or bench area below the mines. On the west boundary of the tailings, an intermittent stream was dammed both above and below the tailings. The drainage area for this stream is shown as watershed C on the map. Drainage control facilities were not observed on the remaining perimeter since apparently no major streams are immediately adjacent to the site. However it appeared that surface runoff from the top of the mill and tailings area had channeled down the slopes of the tailings. An estimate of the total volume of the runoff from the mill and tailings area itself is shown on Table 1 and designated as watershed D (slides on file).

At the mine (see map) the drainage appeared to be controlled by the use of natural shape of the mine pits. In the lower mine, water was ponded. The upper mine appeared to extend up to the ridge and did not appear to be heavily eroded although drainage from this area could not be determined readily. Below the mines and tailings area another small settling pond was observed which appeared to have a break with spring water still flowing into it. The two tributary watershed areas above the mining areas are collectively shown was watershed E on the map.

The respective storm runoff flows from the mill and mine areas is shown in Table 2.





Table 2 Storm Drainage Flows from Above and Off the Facility  $\frac{1}{2}$ 

	Drainage Area		ischarge cfs)	Total V of Runoff ( 24-hour	
Watershed	(acres)	•	100-yr. Storm		100-yr. Storm
· · C	ຸ 130	170	320	. 14	20
D	30	Not app	licable	4	5
Ε	70	140	270	8	12

1/ The rational method was used assuming saturated soil conditions.

Based on the estimated magnitude of the flows and volumes and my observations, it is evident that maintenance of the drainage facilities is needed to prevent long term erosion of the open pit mine and mill areas to intermittent water courses below.

The facility is currently owned by Wheeler Properties, Inc. of Reno, Nevada which will apparently no longer assume responsibility for the Atlas facility. According to Mr. Dick Charlton of Vinnell Mining and Minerals Corporation (previous owners of the Atlas facility), the facility was sold to Wheeler Properties in 1974. Now that Wheeler has defaulted, he indicated that the property will revert back to Vinnell in January because of the bankruptcy. Vinnell then plans to sell the facility.

In conclusion, the Atlas Asbestos facility threatens to violate Board discharge resolutions which specify that:

- "1. The discharge shall not cause a pollution of ground or surface waters.
- The discharge shall not cause a nuisance."

As a result we should seek corrective measures which will prevent mine and mill generated asbestos wastes from entering drainage courses. To accomplish this, the responsible party should be identified and requested to implement corrective measures as necessary to provide adequate drainage control facilities and onsite erosion controls to maintain the wastes on these facilities.

#### Asbestos Mine and Mill Facilities

As we understand it, EPA also is pursuing enforcement action on Atlas Asbestos. We should coordinate our actions with theirs as we seek compliance with Regional Board requirements. In addition, the California Department of Water Resources and U.S. Water and Power Resources Service are formulating watershed studies for flood control and now asbestos control. These should also be coordinated to include our concerns, if possible.

Our basic concern is the source of the asbestos in the California Aqueduct. Since there is a massive natural asbestos ore body in the watershed, any watershed study should include a determination of the natural contribution from this ore body to properly formulate an asbestos control plan.

> aguld Hatar ARNOLD K. HATA Staff Engineer

AKH/ic

Enclosure

Mr. Charles Eckerman, Environmental Protection Agency

Mr. Ken Greenberg, Environmental Protection Agency

Mr. Scott Florence, Bureau of Land Management, Folsom

Mr. Gunter Redlin, State Department of Health Services

Mr. Carl Carlucci, State Department of Health Services

Mr. Louis Beck, State Department of Water Resources

Mr. Victor McIntyre, State Department of Water Resources

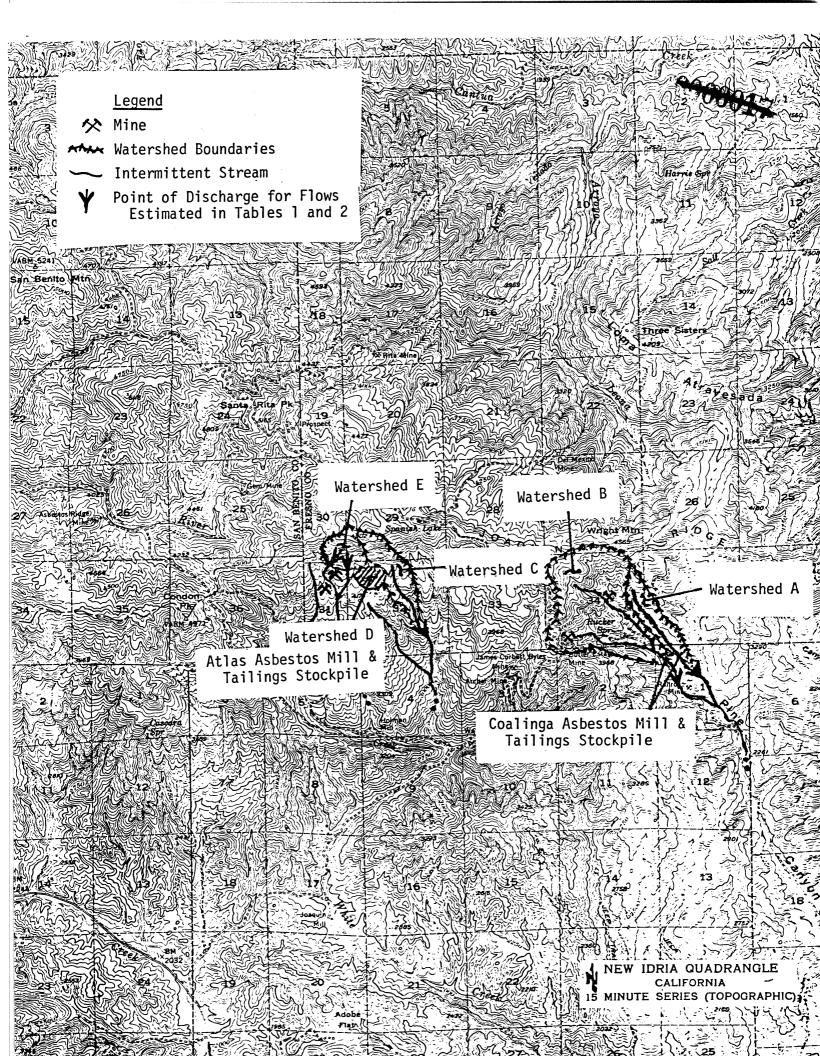
Mr. James Parsons, State Water Resources Control Board

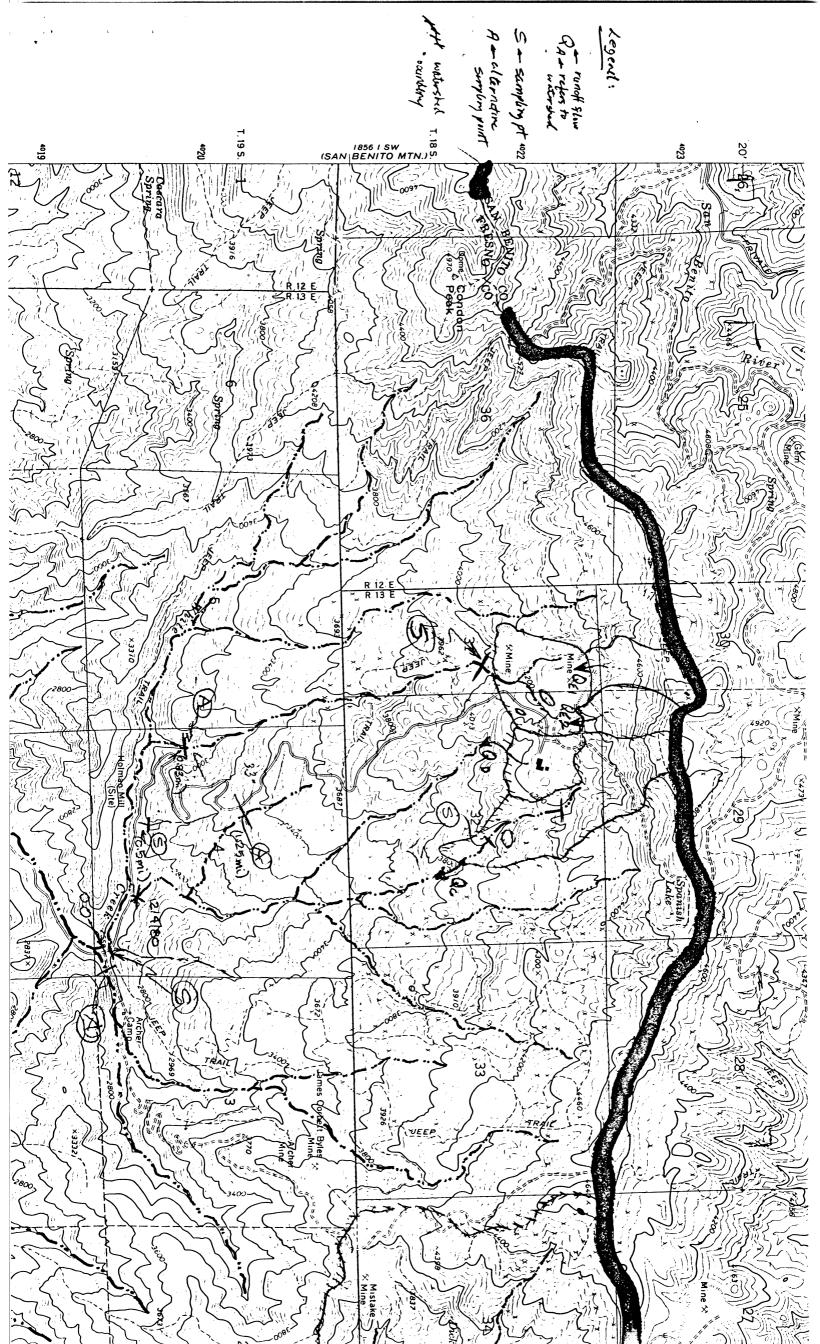
Mr. Tom Gay, California Division of Mines and Geology, Sacramento

Mr. Clint Jones, Fresno County Health Department

Mr. R. I. Bissett, Southern Pacific Land Company

Mr. David W. Long, Attorney, Southern Pacific Land Company

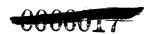




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APPENDIX B

SAMPLE DOCUMENTATION



#### SAMPLE DOCUMENTATION

At 1500 hours on 4 December 1980, Messrs., M.E.Ransom and D.A. Buecker collected a water sample from an unnamed tributary to White Creek, approximately one-fourth mile due east of the Holman Mill site (Figure 1, Photograph #6). The sample was collected in a prerinsed (deionized water) 8 ounce glass container. After the sample was collected the jar was immediatedly sealed with inspectors tape and all necessary information was entered on a chain of custody form. The sample remains in the custody of Messrs., M.E. Ransom and D.A. Buecker for analysis at a later date.

## ENVIRONMENTAL PROTECTION AGENCY Office of Enforcement

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